India is on the verge of a looming soil crisis that can potentially impact its agriculture in the near future. A third or 120 million hectares of soil of the total 350 million hectares has already turned problematic.

The reasons for the declining health of the soil is that they are either acidic, saline, sodic or alkaline soils. Whatever be the name, the net result is the poor health can have a big impact on agriculture productivity, sustainability and also on human health, says a report brought out by a consortium of agriculture institutes. Soil is the key to ecosystem services, as it plays a vital role in carbon cycle, storing and filtering water. The organic matter content, on an average, has gone down to a critical level of 0.3 to 0.5 per cent and several micro-nutrient deficiencies are surfacing rather quickly in different parts of the country, the report released on the occasion of World Soil Day on Tuesday observed.

For India, which has over 17 per cent of the world population with limited land resources, the current situation warrants immediate attention and urgent remedial measures. In fact, a national policy to address the critical issue is needed, says MANAGE, one of the institutes in the consortia. According to V. P. Sharma of Manage, the Centre has been briefed about the evolving situation. Countries such as Germany and even Kenya have national soil policies. Two institutes -- the Institute of Soil & Water Conservation, Dehradun and the Indian Institute of Soil Sciences (IISS), Bhopal are involved in studying some aspects of soil.

Giving an example of the emerging crisis, Sharma said the carbon content in soils is less than one per cent in the plains and around 2 per cent in the hill states of the country. Compare this with the world average of 4 per cent. Similarly, the increasing salinity and decreasing carbon content do not bode well for the future of agriculture.

The declining response ratios due to excess spraying of fertilisers, which leads to wasteful expenditure on fertiliser subsidy, only leads to loss of key national resources. This will affect human health, as the agriculture produce is deficient in nutrition values.

India has a varied geological, climate and vegetation, which gives it different soil types. It takes thousands of years to make one metre depth of soil, therefore, there is no option before the country but to halt and reverse the deterioration, so that the ability to feed billions and meet their nutrition needs is not severely impacted, the report says.

The authors include V Usha Rani, DG of Manage, AK Patra of IISS, Brajendra, Indian Institute of Rice Research (IIRR), Surendra Babu of the Professor Jayashankar Agriculture University, Srinivasa Rao, NAARM, and Shailender Kumar, ICRISAT (all Hyderabad institutes). Read more